PATENT S/N Unknown

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Leonard Forbes et al.

Examiner:

Unknown Unknown

Serial No.:

Unknown

Group Art Unit: Docket:

1303.017US2

Filed: Title:

Herewith TECHNIQUE TO CONTROL TUNNELING CURRENTS IN DRAM CAPACITORS,

CELLS, AND DEVICES

INFORMATION DISCLOSURE STATEMENT

MS Patent Application Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 et. sea., the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement.

Pursuant to 37 C.F.R. §1.98(d), copies of the listed documents are not provided as these references were previously cited by or submitted to the U.S. Patent Office in connection with Applicants' prior U.S. application, Serial No. 09/945310, filed on August 30, 2001, which is relied upon for an earlier filing date under 35 U.S.C. §120.

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

LEONARD FORBES ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

P.O. Box 2938

Minneapolis, MN 55402

(612) 373-6944

Date 1/-25-03

David C. Peterson

Reg. No. 47,857

"Express Mail" mailing label number: EV298565322US

Date of Deposit: November 25, 2003

This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to The Commissioner for Patents, Mail Stop Patent Application, P.O.Box 1450, Alexandria, VA 22313-1450.

PTO/SB/08A(10-01)
Approved for use through 10/31/2002. OMB 651-0031
US Patient & Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number. Substitute for form 1449A/PTO Complete if Known INFORMATION DISCLOSURE **Application Number** Unknown STATEMENT BY APPLICANT Even Date Herewith **Filing Date** (Use as many sheets as necessary) Forbes, Leonard **First Named Inventor Group Art Unit** Unknown **Examiner Name** Unknown Attorney Docket No: 1303.017US2 Sheet 1 of 2

US PATENT DOCUMENTS							
Examiner Initial *	USP Document Publication Date Number		Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate	
	US-3,387,286	06/04/1968	Dennard, Robert H.	340	173	07/14/1967	
	US-5,530,581	06/25/1996	Cogan, S. F.	359	265	05/31/1995	
	US-5,886,368	03/23/1999	Forbes, Leonard, et al.	257	77	07/29/1997	
	US-5,989,958	11/23/1999	Forbes, Leonard	438	257	08/20/1998	
	US-6,031,263	02/29/2000	Forbes, L. , et al.	257	315	07/29/1997	
*15-9	US-6,278,155	08/21/2001	Okabe, Yoshifumi , et al.	257	328	11/22/1999	

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²		

	OTHE	R DOCUMENTS NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²
		"Silicon Monoxide", CERAC, incSilicon Monoxide, SIO,(2000),pp. 1-4.	
		AL-ANI, S.K.J., et al., "The Effect of Temperature of the Optical Absorption	
		Edge of Amorphous Thin Films of Silicon Monoxide", phys. stat. sol.(b) 123,	1
		(1984),pp. 653-658	
		AL-ANI, S.K.J., et al., "The optical absorption edge of amorphous thin films of	
		silicon monoxide", Journal of Materials Science, 19, (1984),pp. 1737-1748	
,,,,,,		CHAND, N., et al., "Tunability of intrinsic stress SiO/sub x/ dielectric films	
		formed by molecular beam deposition", IEE, (1995),2 pages	
		CHAU, R., et al., "30nm Physical Gate Length CMOS Tansistors with 1.0 ps n-	
		MOS and 1.7 ps p-MOS Gate Delays", IEEE Int. Electron, Devices Meeting, San	
		Francisco, (December, 2000),pp. 45-48	<u> </u>
		DEMICHELIS, F., et al., "Doped amorphous and microcrystalline silicon carbide	
		as wide band-gap material", Wide Band Gap Semiconductors Symposium, Mat.	
		Res. Soc., Pittsburgh, PA, (1992),1 page	
		ELDRIDGE, J. M., et al., "Oxidation of Plasma-Deposited a-SixC1-x: H films", J.	
		Electrochem. Soc., Vol 137, No. 7,(July, 1990),pp. 2266-2271	ļ
		FURUSAWA, T., et al., "Simple, Reliable Cu/low-k Interconnect Integration	
		Using Mechanically-strong Low-k Dielectric Material: Silicon-oxycarbide", Proc.	
		IEEE Int. Interconnect Technology Conf., (June, 2000),pp. 222-224	
		HIRAYAMA, M., et al., "Low-Temperature Growth of High-Integrity Silicon Oxide	
		Films by Oxygen Radical Generated in High-Density Krypton Plasma", <u>IEEE</u> ,	
		(1999),4 pages	

EXAMINER

DATE CONSIDERED

PTO/SB/08A/10-01)
Approved for use through 10/31/2002. OMB 651-0031
US Patient & Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number. Substitute for form 1449A/PTO Complete if Known INFORMATION DISCLOSURE **Application Number** Unknown STATEMENT BY APPLICANT **Filing Date** Even Date Herewith (Use as many sheets as necessary) **First Named Inventor** Forbes, Leonard **Group Art Unit** Unknown Unknown **Examiner Name** Attorney Docket No: 1303.017US2 Sheet 2 of 2

ILYAS, M., et al., "The optical absorption edge of amorphous thin films of silicon monoxide and of silicon monoxide mixed with titanium monoxide", <u>IEE</u> , (2001),1 page	
KUBASCHEWSKI, O., et al., "Oxidation of Metals and Alloys", Butterworths, London, (1962),pp. 53-64	
MAITI, B., et al., "Metal Gates for Advanced CMOS Technology", Proc. Microelectronic Device Technology III, Santa Clara, CA, 22-23, Soc. of Photo-Optical Instrumentation Engineers, Bellingham WA,(September, 1999),pp. 46-57	
RENLUND, G. M., et al., "Silicon oxycarbide glasses: Part I. Preparation and chemistry", J. Mater. Res., (December, 1991),pp. 2716-2722	
RENLUND, G. M., et al., "Silicon oxycarbide glasses: Part II. Structure and properties", J. Mater. Res., vol. 6, No. 12,(December, 1991),pp. 2723-2734	
ROBINSON, G., "Passivation hardens lasers for low-cost package", 3 pages	
SHI, Y., "Tunneling Leakage Current in Ultrathin (<4 nm) Nitride/Oxide Stack Dielectrics", IEEE Electron Device Letters, 19(10), (Oct. 1998),pp. 388-390	
SKRIVER, H. L., et al., "Surface energy and work function of elemental metals", Physical Review B (Condensed Matter), vol. 46, no. 11,(September 15, 1992),1 page	
STRASS, A., et al., "Fabrication and Characterisation of thin low-temperature MBE-compatible silicon oxides of different stoichiometry", Thin Solid Films 349, (1999),pp. 135-146	
SZE, S. M., "Physics of Semiconductor Devices", Wiley, (1969),pp. 402-407	
SZE, S. M., "Physics of Semiconductor Devices,", Wiley, (1981),pp. 251, 396	